On various deposits of Fossil Plants in Queensland.

By the Rev. J. E. Tenison-Woods, F.G.S., F.L.S., &c.

Attention has been called at various times and by different Geologists to the carbonaceous deposits and the included plant remains in Queensland. They have generally been referred to two horizons, namely the Newcastle series and those of the so-called Mesozoic carbonaceous formations as seen in the Ipswich coal beds, the Clarence River series, and those of Jerusalem in Tasmania. The Newcastle series are found at the Bowen River coal beds in Queensland in the upper or freshwater series. The middle or marine series are also found at Bowen, and in the coal beds of the Dawson River. These are in Lat 23° and were in 1844, discovered by Leichhardt. All these formations are characterized by certain fossils, such as *Glossopteris Browniana* in the lower formation and *Thinnfeldia odontopteroides* in the upper or Mesozoic.

In addition to these deposits I have to chronicle the following:

1. Coal beds in Cooktown with plant remains the only ones of which I could be certain were leaves of *Phyllotheca* (*indica?*). This plant which is referred to the Equisetæ is found in both the upper and lower formations. It has also a wide range, being found in the Coal formation of India, Africa, and Europe.

2. Coal beds on the Central Railway about 130 miles west of Rockhampton. The coal is bad and full of sulphur. None of the plant remains could be identified.

3. Coal beds on the Burnett River. Five seams of very jet-like coal have been discovered on the Burnett at about 24 miles from the coast. I visited them shortly after their discovery. I venture to think that other valuable seams will be found in the neighbourhood. The plant remains were leaves of *Phyllotheca* (*indica?*), *Zeugophyllites elongatus*, and probably *Thinnfeldia odontopteroides*.. Further down the river there is an exposed section

which I did not see. But fossil plants were brought to me with impressions of a *Sphenopteris* which I do not think has been described. The whole of these beds and those of Ipswich are distinguished by fossil impressions of a very broad and long leaf with parallel veins and no distinct mid rib. At present I do not attempt to refer it to any order.

4. Burrum River coal beds. These are about 30 miles south of those on the Burnett River or half way between Bundaberg and Maryborough. There are several seams. The coal is much like that of the Burnett and inclined at the same angle, but their relative positions have not been ascertained. I recognised some long narrow leaves with parallel veins amongst the plant impressions, and something like *Zeugophyllites elongatus*.. Mr. A. C. Gregory informs me that he found *Glossopteris* amongst the plant impressions, but the shale was so friable that it fell to pieces and the impressions were destroyed.

5. Rosewood Station about 25 miles west of Rockhampton. This is a formntion of sandstone and a grit of fine waterworn gravel. There is no trace of coal or even dark coloured shale yet every fragment of stone is covered with plant impressions in the most beautiful state of preservation. There seems to be but one or two species amongst them all. One is the broad leaved plant with parallel veins already referred to. The other a fern much like one found in abundance in the Clifton coal seam on the Darling Downs. All the fossils are more or less stained with per-oxide of iron. A more detailed account of this interesting formation will be given on a future occasion.

6. The Clifton coal seam, on the Darling Downs, about half-way between Toowoomba and Warwick. I have never seen a good collection of fossils from this place, and as the workings are now abandoned I could not obtain any on the spot. The only ferns I saw were as just mentioned, a form which is very like the one so common at Rosewood.

7. Coal beds near Peak Mountain, near the Fassifern line of railway, and about 20 miles from Ipswich. This is an cutcrop, which has been cut through by a volcanic dyke and destroyed. There are many remains of fossil plants and much Siderite. The fossils are of a dark ferruginous color without any carbonaceous matter. The ferns were extremely like *Rhacopteris*, but await examination. If they belong to that genus, this would indicate a much lower horizon than any beds hitherto found in Queensland.

8. Plant beds in the Rosewood Scrub, about 10 miles from Ipswich. These appear to be quite unconnected with any coal formation, and I should say are of tertiary age. They consist of fragments of palms, and other endogenous plants, with a few ferns. They are imbedded in an extremely hard silico-ferruginous cement. I have not visited the locality, but from the abundance of the fossils brought to me, it must be an extensive and rich deposit.

9. Plant beds on the Darling Downs, near Toowoomba. This deposit is somewhat like that last mentioned, except that ferns are more abundant. I should think it was older. The cement is much more ferruginous and of a darker color, probably including a good deal of carbonaceous matter. I have not visited this locality. The specimens came from some portions of the volcanic rocks of the Darling Downs, and probably they have been entombed under some ash bed or basaltic overflow.

The whole of these different deposits have afforded me an extremely rich collection of vegetable remains, which are now under examination. I have refrained from speaking positively of the character of any species until the specimens have undergone the most careful comparisons and revision. As far as I have gone I am inclined to the belief that no very clear line of separation can be made between the coal beds of Newcastle and Queensland. They are I believe the lower and upper members of one immense formation, extending over a long period

of geologic time. At present the Newcastle beds are regarded as Paleozoic, and the Ipswich beds as mesozoic. I cannot find any such clearly marked distinction. Many fossils are common to both deposits. The Ipswich coals are very rich in fossils, more rich and in better preservation than those of Newcastle. Yet strangely enough only seven species are recorded. On such slender materials it was hardly to be expected that satisfactory and final conclusions could be arrived at. Dr. Feistmantel's careful work has cleared the way, and made the work much more easy to local paleontologists. His complete figures and the number of them leaves nothing ambiguous or unsatisfactory. All Australian geologists will owe him a debt of gratitude, for his industry and zeal in the cause of our coal floras.

Record of new localities of Polynesian Mosses, with descriptions of some hitherto undefined species.

By William Mitten, F.L.S.

[When lately, on my request, the leading British Bryologist, Mr. W. Mitten, was induced to write a list of all known Australian Mosses, he noted also a number of Polynesian species, new either for science or for localities. These valuable manuscripts being placed unreservedly at my disposal, I beg now on his behalf to offer the Polynesian portion of his notes to the Linnean Society of New South Wales. As Port Jackson is that harbour in Australia from which communications with the South Sea Islands most extensively proceed, it will be easier for the Sydney Naturalists than for others, to see these searches for mosses followed up. The large bryologic collections formed by the Rev. Th. Powell in Samoa, and elaborated likewise by Mr. Mitten, lead us to anticipate that great riches of these kinds might also be gathered yet in many others of the island groups of the Pacific Ocean. The several mosses now recorded from